

## CLAIMS

1. A digital filter which comprises:

a first plurality of delay components connectable in series and having an input and an output;

a second plurality of delay components connectable in series and having an input and said output;

a system input coupled to each of said inputs of said first and second pluralities of delay components; and

a plurality of adders, each adder couplable alternately to a different delay component of said first plurality of delay components and then to a different delay component of said second plurality of delay components.

2. The digital filter of claim 1 wherein the number of delay components of said second plurality of delay components is equal in number to said first plurality of delay components.

3. The digital filter of claim 1 wherein said input is concurrently coupled to each of said inputs of said first and second pluralities of delay components.

4. The digital filter of claim 2 wherein said input is concurrently coupled to each of said inputs of said first and second pluralities of delay components.

5. The digital filter of claim 1 wherein the number of adders is equal to one less than the number of delay components in said first or second pluralities of delay components.

6. The digital filter of claim 2 wherein the number of adders is equal to one less than the number of delay components in said first or second pluralities of delay components.

7. The digital filter of claim 3 wherein the number of adders is equal to one less than the number of delay components in said first or second pluralities of delay components.

8. The digital filter of claim 4 wherein the number of adders is equal to one less than the number of delay components in said first or second pluralities of delay components.

9. The digital filter of claim 1 wherein said wherein said digital filter is a FIR filter.

10. The digital filter of claim 8 wherein said wherein said digital filter is a FIR filter.

11. The digital filter of claim 1 wherein the number of adder is equal to the number of delay components in said first or second pluralities of delay components.

12. The digital filter of claim 2 wherein the number of adder is equal to the number of delay components in said first or second pluralities of delay components.

13. The digital filter of claim 3 wherein the number of adder is equal to the number of delay components in said first or second pluralities of delay components.

14. The digital filter of claim 4 wherein the number of adder is equal to the number of delay components in said first or second pluralities of delay components.

15. The digital filter of claim 11 wherein said wherein said digital filter is a FIR filter.

16. The digital filter of claim 14 wherein said wherein said digital filter is a FIR filter.